DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

2. The disclosure is objected to because of the following informalities:

the illustration of invention description on page 4 lines 25-26 recites claims 1 and 16 which have been canceled prior to the filing date of this application.

Appropriate correction is required.

Claim Objections

3. Claims 18 and 34 objected to because of the following informalities:

claim 18 recites "the IP address being altered only slightly" which makes the claim unclear whether the IP address means new station's allocated IP address or the newly generated IP address. For purposes of examination, the IP address that is altered in the claim has been construed as the IP address acquired from the network and allocated to the station;

claim 34 recites "the interference" which appears to be a misspelling and should be --the interface--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 18, 24, 26, and 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. The term "slightly" in claim 18 is a relative term which renders the claim indefinite. The term "slightly" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The alteration made to IP address is therefore rendered indefinite by the used of this term.

7. The term "characteristic" in claim 24 is a relative term which renders the claim indefinite. The term "characteristic" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The time to wait before the device can use Auto IP is therefore rendered indefinite by the used of this term.

8. Claim 26 recites the limitation "the procedure" in page 6 line 7. There is insufficient antecedent basis for this limitation in the claim. For purposes of examination, “the procedure” has been construed as the automatic determination.

9. Claim 30 recites “and/or” in page 7 line 6 which fails to particularly point out whether the claims affirmatively require the conjoined content representations or if they are to be interpreted in the alternative. For the purposes of examination, the limitation in claim 30 has been construed in the alternative only.

Claim Rejections - 35 USC § 101

10. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

11. Claim 35 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 35 recites a computer program per se without explicitly claiming that such program is recorded on any physical computer-readable medium. Computer programs claimed as computer listings per se, i.e., the descriptions or expression of the programs, are not physical "things." They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer which permit the computer program's functionality to be realized. See MPEP 2106.01 Section I. Functional Descriptive Material: "Data Structures" Representing Descriptive Material Per Se or Computer Programs Representing Computer Listings Per Se.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 18-19, 21-22, and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Cole et al. (U.S. Patent No. 5,854,901).

14. Regarding claim 18, the Cole reference teaches a method for automatically allocating an IP address (see Cole, column 1 lines 8-12 "heuristically discovers IP addresses for network endpoints") when a new station is connected in a network, comprising:

in a first phase, the new station in the network (see Cole, figure 1 "router 24", column 3 line 16 "router represents any device that uses an IP address") allocating itself its IP address autonomously by virtue of the network being monitored for at least one already allocated valid IP address (see Cole, column 3 lines 27-35);

and in a second phase, an (i) IP address that is different than the already allocated IP number is generated automatically (see Cole, column 3 lines 47-51 "generates a proposed IP address"), with generation involving the IP address being altered only slightly (see Cole, column 5 lines 21-25 "incrementing or decrementing"), (ii) availability of the generated IP address is checked by a request in the network (see Cole, column 5 lines 24-29 "reply is received...proposed IP address is already assigned to another device"); and if the generated IP address is available, the new station allocating it to itself (see Cole, column 5 lines 30-32 "no device responds...assigned to the router") or, if it is not available, the generation of a new IP address (i) or the checking thereof (ii)

being repeated (see Cole, column 5 lines 28-30 "generates a new proposed IP address…and another ARP request").

15. Regarding claim 19, the Cole reference teaches the method of claim 18, wherein in the second phase (i) the address is altered by altering just a last of four bytes (see Cole, figure 5, column 5 lines 47-61, it is understood from the example that only the last 8 bits are changed in the Cole reference), while first three bytes are adapted from the already allocated IP address (see also Cole, column 5-6 lines 66-67 and 1-2).

16. Regarding claim 21, the Cole reference teaches the method of claim 18, wherein the automatically generated IP address is either by virtue of a last byte being incremented or decremented by a fixed value (see Cole, column 5 lines 21-25 "incrementing or decrementing...where N is an integer"), by virtue of the last byte being filled with a random number, by virtue of the last byte being derived algorithmically from a system constant or by virtue of it being assigned a fixed value (see also Cole, figure 5, column 5 lines 47-61).

17. Regarding claim 22, the Cole reference teaches the method of claim 18, wherein the availability of the generated IP address is obtained using an address resolution request with the generated IP address (see Cole, figure 3 numeral 52, column 4 lines 26-32 "to determine the availability of a proposed IP address"), and by virtue of the generated IP address being assumed to be available if there is no response or being assumed to be unavailable if a response is received (see Cole, column 4 lines 33-38).

18. Regarding claim 35, the Cole reference teaches a computer program for carrying out a method as claimed in claim 18 (please see the rejection previously cited above for claim 18).

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

20. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cole et al. (U.S. Patent No. 5,854,901) in view of Arndt (U.S. Patent No. 6,826,611).

21. Regarding claim 20, the Cole reference teaches the method for automatically allocating an IP address of claim 18, wherein the second phase is initiated when the first different and hence valid IP address in the network has been monitored (see Cole, column 1 lines 50-65). The Cole reference fails to explicitly teach the method wherein within the first phase during monitoring, IP addresses at 0.0.0.0 or 255.255.255.255 are ignored and IP addresses in a range from 169.254.1.0 to 169.254.254.255 are logged. Conversely, the Arndt reference teaches a step of monitoring traffic on the network and logging source IP addresses in the network (see Arndt, column 3 lines 66-67 and column 4 lines 1-3, it has been known in the art that a valid subnet mask must have leftmost bit set to '1' and rightmost bit set to '0' therefore, any host's IP address of 0.0.0.0 or 255.255.255.255 are ignored by Arndt's invention) in order to select the best

address range to obtain device's IP address that is actually within the local network (see Arndt, column 1 lines 45-55).

It would have been obvious to the person having ordinary skill in the art, at the time the invention was made to include Arndt's teaching of determining valid IP addresses from subnet masks and logged valid source IP addresses in Cole's invention in order to select the best address range to obtain device's IP address that is actually within the local network (see Arndt, column 1 lines 45-55).

22. Claims 23, 24, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cole et al. (U.S. Patent No. 5,854,901) in view of Ford et al. (U.S. Patent No. 6,101,499).

23. Regarding claim 23, the Cole reference teaches the method for automatically allocating an IP address of claim 18. The Cole reference does not teach the method wherein a check is first carried out to determine whether the network contains a server for automatically allocating IP addresses, and wherein if there is such a server the new station assigns itself the IP address allocated by the server. The Ford reference, on the other hand, teaches a step of determining whether or not there is an IP address server in the network (see Ford, figure 4 "IP address server? 84", column 8 lines 23-24 "server is present") and if there is the device receives IP address from the server (see Ford, figure 4 "get and use IP address from IP address server 86", column 8 lines 26-27) in order to omit the unnecessary steps of automatic IP address generation (see Ford, column 8 lines 24-25).

It would have been obvious to the person having ordinary skill in the art, at the time the invention was made, to have modified the Cole's apparatus and method to check for an existing IP address server in the network before generating its own IP address in order to omit the unnecessary steps of automatic IP address generation (see Ford, column 8 lines 24-25).

24. Regarding claim 24, the Cole reference teaches the method for automatically allocating an IP address as claimed in claim 18. The Cole reference does not teach that if no valid IP address is received in the first phase within a characteristic time, then automatic allocation is performed using Auto IP. However, the Ford reference teaches that if an IP address server is not available and the device is capable of performing automatic IP address generation, the device generates an IP address automatically using a "reserved" as its network identifying portion of the IP address (see Ford, column 8 lines 40-61, where in "reserved" value is defined in column 3 lines 46-55 as "169.254", it is understood that while checking for available DHCP server, Ford's device must stall for a certain amount of time before starting the automatic IP address generating step).

It would have been obvious to the person having ordinary skill in the art, at the time the invention was made, to include Ford's teaching of using a fixed "reserved" value as a network identifying portion of the IP address in order to consistently select the same value for all devices in the network (see Ford, column 8 lines 55-58).

25. Regarding claim 28, the Cole reference teaches the method for automatically allocating an IP address as claimed in claim 18. The Cole reference fails to teach the method wherein after the IP address has been allocated, periodic requests are used to

check the network to determine whether the IP address of the new station is still unique, and wherein if a further station with the same IP address is found then a free and valid IP address is sought and allocated by re-entering the second phase. However, the Ford reference teaches a step of monitoring any conflicting usage of the generated IP address currently in use (see Ford, figure 4 "use generated IP address and periodically test for IP address server or conflicting usage", column 10 lines 2-6) in order to guarantee that a device has a unique IP address (see Ford, column 2 lines 46-51 and column 3 lines 64-67).

It would have been obvious to the person having ordinary skill in the art to have created Cole's invention to include a safeguard as taught by the Ford reference in order to guarantee that only one device has a particular IP address (see Ford, column 2 lines 46-51 and column 3 lines 64-67).

26. Claims 25 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cole et al. (U.S. Patent No. 5,854,901) in view of Thomas et al. (U.S. Patent Application Publication No. 2002/0065663), hereinafter Thomas '663, with motivation in Thomas et al. (U.S. Patent Application Publication No. 2002/0107596), hereinafter Thomas '596.

27. Regarding claim 25, the Cole reference teaches the method for automatically allocating an IP address as claimed in claim 18. The Cole reference fails to teach that the new station is a station with an audio output, and wherein the finally allocated IP address is output via the audio output. However, the Thomas '663 reference teaches a device connected to a network that can verbally speak its IP address to a user or

another device (see Thomas '663, [0020] 2nd sentence "output...through loudspeaker 13") in order to facilitate exchanging of network addresses between any devices with a loudspeaker by means of audio communication (see Thomas '596, [0003]-[0004] "Voice Browsers").

It would have been obvious to the person having ordinary skill in the art, at the time the invention was made, to have included, with the method taught by the Cole reference, the step of outputting IP addresses through speaker taught by the Thomas '663 reference in order to facilitate exchanging of network addresses between any devices with a loudspeaker by means of audio communication (see Thomas '596, [0003]-[0004] "Voice Browsers").

28. Regarding claim 34, the Cole reference teaches a network station for connection to a network comprising:

at least one communication interface configured to interchange data with the network (see Cole, figure 2 "web server 48", column 4 lines 1-11);

at least one storage medium, and a processor connected to the interference and to the storage medium, the storage medium containing programs for execution by the processor, wherein the storage medium contains a program for carrying out the method as claimed in claim 18 (see Cole, figure 2 "IOS 26", "ARP 41", "configuration parameters 42", "new-trouter.cisco.com 44", "address generator 46", column 3 lines 65-67 and column 4 lines 1-5, please refer back to the previously rejected claim 18 regarding the method as claimed in claim 18), and wherein the network station automatically starts the program after connection to a network, provided

that it has not yet been activated (see Cole, column 8 lines 40-47). The Cole reference fails to teach that the network station has an audio output and can output an allocated IP number via this audio output. Conversely, the Thomas '663 reference teaches a device connected to a network that can verbally speak its IP address to a user or another device (see Thomas '663, [0020] 2nd sentence "output...through loudspeaker 13") in order to facilitate exchanging of network addresses between any devices with a loudspeaker by means of audio communication (see Thomas '596, [0003]-[0004] "Voice Browsers").

It would have been obvious to the person having ordinary skill in the art, at the time the invention was made, to have included, with the device taught by the Cole reference, the step of outputting IP addresses through speaker taught by the Thomas '663 reference in order to facilitate exchanging of network addresses between any devices with a loudspeaker by means of audio communication (see Thomas '596, [0003]-[0004] "Voice Browsers").

29. Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cole et al. (U.S. Patent No. 5,854,901) in view of Arndt (U.S. Patent No. 6,826,611) and Haden ("IP Addressing").

30. Regarding claim 26, the Cole reference teaches the method for automatically allocating an IP address of claim 18. The Cole reference fails to teach that the assignment of IP address of claim 18 is followed by automatic determination of broadcast address and netmask, the procedure being that a destination address of a monitored broadcast block is adopted as broadcast address. The Arndt reference, on

the other hand, teaches a method monitoring traffic on the network to find a subnet mask for the local network (see Arndt, column 4 lines 43-56) in order to ensure that the obtained device's IP address that is actually within the local network (see Arndt, column 1 lines 45-55). The Arndt reference does not explicitly specify that the subnet masks can be used to determine broadcast address of the network however, the Haden reference specifically shows that a broadcast address for each subnet is when the host portion of the IP address is made up of all 1's (see Haden, page 4 highlighted part).

It would have been obvious to the person of ordinary skill in the art, at the time the invention was made, to combine Arndt's teaching of identifying valid subnet mask with Cole's invention in order to ensure that the obtained device's IP address that is actually within the local network (see Arndt, column 1 lines 45-55).

31. Regarding claim 27, Cole, Arndt, and Haden references teach the method as claimed in claim 26. Furthermore, the Haden reference indicates that the broadcast address of a subnet is when the host portion of the IP address in the subnet is made up of all 1's (see Haden, page 4 highlighted part). Additionally the Arndt reference shows the steps for trial testing for a subnet mask of the network its instrument is attached to from the bottom upward until the valid subnet mask is found or 255.255.255.0 mask is reached (see Arndt, column 4 lines 45-54). Thus, by discovering the subnet mask, Arndt's instrument finds the network portion of the IP address and inherently, the broadcast address is determined by using first three bytes of the allocated valid IP address from the network to check all possible broadcast addresses from the bottom upward with a query about protocols, and by then stipulating the netmask such that all

bits above the broadcast component are set to 1 and all bits of the broadcast component are set to 0 (see Arndt, column 4 lines 45-54). Moreover, the Haden reference teaches that the valid broadcast address taken being the first IP address to which all stations in the network that have a lower IP address respond (see Haden, page 4 highlighted part "ping").

32. Claims 29 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cole et al (U.S. Patent No. 5,854,901) in view of Wong et al. (U.S. Patent No. 6,073,178).

33. Regarding claim 29, the Cole reference teaches the method of claim 18, but Cole's device generates IP address for itself which allows the device to connect to a local network. The Wong reference, however, teaches that at least one network station already integrated in the network (see Wong, figure 1 router 106) executes a program that sends data packets in a form of markers to indicate to the new station (see Wong, column 7 lines 61-65) what network it needs to integrate itself in (see Wong, column 7 lines 66-67 and column 8 lines 1-2, it is understood that part of the IP address identifies the network where a device is connected to).

It would have been obvious to the person having ordinary skill in the art, at the time the invention was made, to have combined Wong's and Cole's teachings when allocating IP address to a network endpoint in order to prevent a malicious user from forging an IP address that Cole's network endpoint may be unaware of (see Wong, column 2 lines 4-12).

34. Regarding claim 32, the Cole and the Wong references teach the method as claimed in claim 29. Furthermore, the Wong reference teaches that the markers are sent on based on an identification number that is specific to the new station (see Wong, column 7 lines 62-65 "trusted identifier embedded").

35. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cole et al (U.S. Patent No. 5,854,901) in view of Wong et al. (U.S. Patent No. 6,073,178) as applied to claim 29 above, and further in view of Rodwin et al. (U.S. Patent No. 5,812,819).

36. The modified Cole reference teaches the method of claim 29 as cited above. The modified Cole reference further teaches that the markers are data packets of specific and identifiable block length and/or at specific and identifiable time intervals (see Wong, figure 5, it is known in the art that the DHCP packet as shown in figure 5 has a specific identifiable size). However the modified Cole reference fails to show that the network being a cableless network. Conversely, the Rodwin reference suggests that a remote computer like Wong's PC maybe connected to a modem which wirelessly communicates with a network to obtain an IP address (see Rodwin, figure 2 "22", column 4 lines 59-63).

It would have been obvious to the person of ordinary skill in the art, at the time of the invention, to have used a wireless cable modem instead of Wong's wired cable modem in order to be able to provide IP address to remotely located wireless capable devices.

37. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cole et al (U.S. Patent No. 5,854,901) in view of Wong et al. (U.S. Patent No. 6,073,178) as applied to claim 29 above, and further in view of Gudmundsson ("Security Architecture for DHCP").

38. Regarding claim 31, the modified Cole reference teaches the method of claim 29, wherein Wong further teaches the markers are used to transfer network parameters to the new station directly or indirectly, using coding (see Wong, figure 5), and where the new station, following registration thereof in the network, also acknowledges its successful registration to the network station that is already integrated in the network (see Wong, column 7 lines 7-15) and then the program on the network station that is already integrated in the network is automatically stopped (see Wong, figure 6, it is understood that the DHCP server does not keep on sending DHCP packets to client device, thus stops its program).

The modified Cole reference does not show the new station has security and reliability of the data transmission verified using appropriate control mechanisms. The Gudmundsson reference discloses client device with security measurement in ensuring that the DHCP traffic is authentic (see Gudmundsson, page 5 sections 6.4).

It would have been obvious to the person having ordinary skill in the art, at the time the invention was made, to have implemented Gudmundsson's security measure in Wong's DHCP traffic in order to prevent any attacks against servers and clients (see Gudmundsson, page 4 sections 2.4).

39. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cole et al (U.S. Patent No. 5,854,901) in view of Wong et al. (U.S. Patent No. 6,073,178) as applied to claim 29 above, and further in view of Gudmundsson ("Security Architecture for DHCP") and Kumar (U.S. Patent No. 7,389,415).

40. Regarding claim 33, the modified Cole reference teaches the method of claim 29. The modified Cole reference fails to show that the markers are encrypted information, with the key being derived from a specific identification number. The Gudmundsson reference, on the other hand, suggests the use of security measure for DHCP traffic that requires authentication and encryption between DHCP servers and clients (see Gudmundsson, page 5 sections 6.3-6.5) in order to prevent any attacks against servers and clients (see Gudmundsson, page 4 sections 2.4). However the Gudmundsson fails to specify that the a specific identification number of a client can be used to generate the key. The Kumar reference discloses that the keys for encryption and decryption can easily be generated from the device's MAC address (see Kumar, column 2 lines 26-28 and 44-48) in order to provide unique key for each device (see Kumar, column 2 lines 32-33).

It would have been obvious to the person of ordinary skill in the art, at the time the invention was made, to have use Kumar's method of using MAC address to generate any keys for encrypting and decrypting DHCP packets to provide security measure in DHCP traffic as Gudmundsson suggested in order to prevent attacks against servers and clients (see Gudmundsson, page 4 sections 2.4).

Conclusion

41. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The Miller reference discloses of a device that automatically assigned itself an IP address and offers its service by registering itself to a central control device.

42. Any inquiry concerning this communication or earlier communications from the examiner should be directed to YOUPAPORN NILANONT whose telephone number is (571) 270-5655. The examiner can normally be reached on Monday through Thursday and alternate Friday at 7:30 AM - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey C. Pwu can be reached on (571) 272-6798. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Y. N./
Youpaporn Nilanont
10/27/2008
Examiner, Art Unit 2446

/Jeffrey Pwu/
Supervisory Patent Examiner, Art Unit 2446